

CONSENSUS STATEMENT

Healthy Beverage Consumption in Early Childhood

Recommendations from Key National Health
and Nutrition Organizations

**Healthy Eating
Research**

September 2019



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INTRODUCTION

Establishing healthy dietary patterns in early childhood (0 to 5 years) is important to help prevent future diet-related chronic diseases, as well as to support optimal physical and cognitive growth and development and overall health.¹⁻⁴ Healthy beverage intake is critical in early childhood as beverages can make a significant contribution to dietary intake during this period,⁵ and thus may serve as important sources of essential nutrients. However, many beverages also contain added sugars and saturated fats, which can be harmful when consumed in excess.⁶ Overconsumption of unhealthy beverages along with inadequate consumption of healthy beverages in early childhood can contribute to risk of diet-related chronic diseases, such as obesity, type 2 diabetes, or dental caries.⁷ This makes beverages a critical target for improving the health and well-being of infants and young children.

BACKGROUND

Many authoritative bodies have issued guidance and recommendations for healthy beverage intake,^{5,11,12} but important gaps exist as these recommendations have not been comprehensive in the age groups covered or in the types of beverages discussed. There also are inconsistencies in certain aspects of existing recommendations, such as suggested consumption amounts or recommended ages for introduction, potentially contributing to misunderstanding among health care providers, parents, and caregivers.

Given the importance of beverage consumption in early childhood and the need for comprehensive and consistent evidence-based recommendations, Healthy Eating Research (HER), a national program of the Robert Wood Johnson Foundation (RWJF), convened an expert panel representing 4 key national health and nutrition organizations to develop comprehensive recommendations for beverage consumption

Despite the importance of healthy beverages in early childhood, many young children's beverage intakes diverge from evidence-based recommendations. For example, many infants consume milk and 100% juice before their first birthday, which can increase their risk for nutrient deficiencies, such as anemia.⁶ Among 2 to 5-year-olds, close to half (44%) consume a sugar-sweetened beverage (SSB) daily,⁸ and the prevalence of SSB consumption increases throughout childhood.⁹ There are also significant differences in beverage intake by race/ethnicity and income groups in early childhood that need to be addressed.^{9,10}

consistent with a healthy diet for children from birth to age 5. The 4 organizations represented on the expert panel are (in alphabetical order) the Academy of Nutrition and Dietetics (AND), the American Academy of Pediatric Dentistry (AAPD), the American Academy of Pediatrics (AAP), and the American Heart Association (AHA).

The resulting recommendations focus exclusively on beverage consumption among 0 to 5-year-olds and support a life course approach to the development of healthy dietary patterns and prevention of chronic disease. The expert panel did not address breast milk or infant formula as recommendations in these areas vary by the infant's age, weight, and developmental milestones, and are generally well understood and widely accepted. For detailed recommendations on these topics, please refer to *Pediatric Nutrition* from the American Academy of Pediatrics and HER's *Feeding Guidelines for Infants and Young Toddlers*.^{12,13}

DEFINITIONS



100% Juice

Beverage made from the extraction or pressing of the natural liquid found in fruits or vegetables; 100% juice means that everything in the container came from a fruit or vegetable with no added sugars or artificial ingredients.



Plain, Pasteurized Milk

Cow's milk that has been heated to a specified temperature and for a specific length of time to kill pathogens that may be found in raw milk, and to which no caloric sweeteners, artificial sweeteners, or flavorings have been added. Common varieties include whole milk (also known as Vitamin D milk), reduced fat (2%), low-fat (1%), and skim (fat-free).



Beverages with Low-Calorie Sweeteners (LCS)

Beverages with no- or reduced-calorie sweeteners. The term LCS includes the six high-intensity sweeteners currently approved by the U.S. Food and Drug Administration as food additives (saccharin, aspartame, acesulfame-K, sucralose, neotame, and advantame) and 2 additional high-intensity sweeteners permitted for use in the food supply (steviol glycosides and monk fruit). Other terms for LCS include non-nutritive sweeteners, artificial sweeteners, and sugar substitutes.¹⁴



Plant Milks/Non-Dairy Beverages

Non-dairy, alternative milk beverages that are derived from plant-based ingredients (e.g., rice, nuts/seeds, coconut, oats, peas, or blends of these ingredients) and often fortified with nutrients found in dairy milk. Many plant milks come in both sweetened and unsweetened varieties; sweetened varieties generally contain added sugars.



Caffeinated Beverages

Drink that contains caffeine, a legal stimulant that is mildly addictive. Common caffeinated beverages include coffee, tea, soft drinks, and energy drinks.



Sugar-Sweetened Beverages (SSB)

Liquids to which any forms of sugar are added. This category does not include beverages sweetened with low-calorie sweeteners (see definition for "Beverages with LCS"), 100% juice, or flavored dairy and/or plant-based milks.



Flavored Milk

Cow's milk to which caloric sweeteners have been added for the main purpose of improving palatability. Common examples include chocolate milk or strawberry milk. These products have also been referred to as sweetened milk.



Toddler Milk

Milk drink supplemented with nutrients and often contains added sugars.¹⁵ These products are marketed as appropriate for children ages 9 to 36 months, and may be marketed as "transition formulas," "follow-on formulas," or "weaning formulas" for children 9 to 24 months and "toddler milk," "growing-up milk," or "young child milk" for children ages 12 to 36 months.¹⁶



Plain Drinking Water

Unflavored, unsweetened, uncarbonated, fluoridated drinking water.



Whole Fruit

Fresh, frozen, canned, and dried forms of fruit that do not have added caloric or low-calorie sweeteners.⁵

METHODOLOGY










HER used a multi-step process to develop the evidence-based recommendations detailed below:

- ① Convening an expert panel of representatives from 4 national health and nutrition organizations, as well as a scientific advisory committee;
- ② Conducting an extensive review of approximately 50 existing source documents and reports from domestic and international authoritative bodies on recommendations and guidance for beverage consumption during early childhood;
- ③ Conducting structured narrative scientific literature reviews for beverages where there was a lack of existing recommendations or where recommendations were incomplete or inconsistent;
- ④ Hosting in-person and virtual expert panel meetings to discuss preliminary consensus recommendations based on available evidence gathered in steps 2 and 3; and
- ⑤ Developing and reviewing final consensus recommendations by expert panelists and scientific advisory committee members.

The expert panel was comprised of 2 representatives from each of the 4 national health and nutrition organizations, a chair, and a research consultant. Panelists were experts in pediatrics, nutrition, and dentistry. HER also recruited a scientific advisory committee of 6 individuals with extensive expertise in establishing dietary guidance, early childhood nutrition, and nutrition science. The scientific advisory committee provided input on the background research strategy and protocols, identified important resources or papers to be included in the technical report and consensus statement, and reviewed the final consensus recommendations for scientific rigor and accuracy. The expert panel met approximately 1-2 times per month over a 6-month period, and also held an in-person meeting to review the evidence, discuss gaps, conduct literature reviews, agree on research terms and content, and develop the final consensus recommendations.

For additional details on the consensus process and methodology, <https://healthyeatingresearch.org/research/technical-scientific-report-healthy-beverage-consumption-in-early-childhood-recommendations-from-key-national-health-and-nutrition-organizations/>.

SUMMARY OF KEY PANEL FINDINGS AND RECOMMENDATIONS

	0-6 months	6-12 months	12-24 months	2-3 years	4-5 years
 Plain drinking water	not needed	0.5-1 cups/day	1-4 cups/day	1-4 cups/day	1.5-5 cups/day
 Plain, pasteurized milk	not recommended		2-3 cups/day whole milk	≤2 cups/day skim or low-fat milk	≤2.5 cups/day skim or low-fat milk
 100% juice	not recommended		≤0.5 cups/day	≤0.5 cups/day	≤0.5-0.75 cups/day
 Plant milks/ Non-dairy beverages	not recommended		medical indication/dietary reasons only		
 Flavored milk	not recommended				
 Toddler milk	not recommended				
 Sugar-sweetened beverages (SSB)	not recommended				
 Beverages with low-calorie sweeteners (LCS)	not recommended				
 Caffeinated beverages	not recommended				

Full key panel findings and recommendations listed in Appendix A on page 14.

BEVERAGES RECOMMENDED AS PART OF A HEALTHY DIET IN EARLY CHILDHOOD



Plain Drinking Water and Overall Hydration

Expert Panel Recommendations

- 0-6 months: No supplemental drinking water needed.
- 6-12 months: Offer a total of $\frac{1}{2}$ to 1 cup (4-8 ounces) per day of plain, fluoridated drinking water in a cup during meal times.
- 1-3 years (12-36 months): 1 to 4 cups (8-32 ounces) per day of plain, fluoridated drinking water*.
- 4-5 years (37-60 months): 1.5 to 5 cups (12-40 ounces) per day of plain, fluoridated drinking water*.

*The specific amount of plain water consumed between 1 and 5 years is determined for each child based on the total amount of milk consumed per day. For example, if a 3-year-old does not consume any milk in a given day, all fluid needs should be met via plain water, and thus 4 cups of plain water would be advised. However, if the same 3-year-old drank 2 cups of milk in a given day, approximately 2 cups of plain water per day would suffice to meet total fluid needs.

If 100% juice is consumed, this additional fluid should also be factored into the amount of plain drinking water to consume. If plain drinking water is the only fluid consumed to meet total fluid needs, careful dietary planning is essential to promote adequate nutrient intake from foods.

Rationale

Water is essential for life, yet there is no single daily requirement of total water or fluid for a given person. Individual fluid needs vary on a day-to-day basis because of differences in physical activity, climate, and other foods and beverages consumed.¹⁷ Furthermore, the human body is generally able to compensate for some degree of over- and under-hydration in the short term, and thus, normal hydration can be maintained over a range of water intakes.

Due to this variation in an individual's total water needs, the expert panel proposed ranges of plain water intake that are dependent on the amount of other recommended beverages consumed throughout the day. Infants younger than 6 months of age need only breast milk or infant formula to maintain adequate fluid intake.¹¹ For 6 to 12-month-olds, offering a small amount of plain water (4-8 ounces total per day) in an open, sippy, or strawed cup is recommended.¹² This drinking water is not intended to replace any amount of breast milk or infant formula, and practically speaking, it is unlikely that much of this drinking water will be ingested as many infants 6 to 12-months-old are still developing cup-drinking skills. This practice is suggested to help familiarize the infant with plain water.

The proportion of total daily water intake that is consumed via foods is approximately 30% for children ages 1 to 3 years and 4 to 8 years.¹⁷ Therefore, the expert panel used only 70% of the reference value for recommended total water intakes (based on the Dietary Reference Intakes for water) to calculate the recommended ranges for plain drinking water. It is important to note that individual requirements will be determined based on amounts of other beverages a child consumes (e.g., milk or 100% juice) in a given day.



Plain, Pasteurized Milk

Expert Panel Recommendations

- 0-12 months: Children under 12 months should not consume milk.
- 12-24 months:
 - At 12 months of age, plain, pasteurized whole milk may be introduced. 2 to 3 cups per day (16-24 ounces) whole milk is recommended until 2 years of age*.
 - Reduced-fat (2%) or low-fat (1%) milk may be considered, in consultation with a pediatrician, especially in the presence of excessive weight gain or family history of obesity, dyslipidemia, or other cardiovascular diseases (CVD).
- 2-5 years:
 - At 2 years of age (24 months), children should transition to plain, pasteurized fat-free (skim) or low-fat (1%) milk.
 - Total daily milk intake may be up to 2 cups per day (16 ounces) for children ages 2 to 3 years and up to 2.5 cups per day (20 ounces) for children ages 4 to 5 years.

*For 12 to 24-month-olds, individual needs will depend on the amount of solid food consumed. As toddlers transition from getting most of their daily calories and nutrient needs from liquids (e.g. breast milk, formula, cow's milk) to eating more solid foods, less milk is needed to meet daily calcium and caloric needs. However, milk remains an important dietary source of protein, calcium, and vitamin D for young children during this time.

Rationale

These recommendations are in alignment with recommendations from the Dietary Guidelines for Americans (DGAs), the AAP, and a prior HER expert panel on infant and toddler feeding guidelines.

The dairy food group is an important source of calcium, phosphorous, vitamins A and D, B vitamins, and protein. Milk is the number one source of energy, calcium, vitamin A, vitamin D, and zinc for infants and young children, making it a critical component of a healthy diet.⁶

The expert panel recognizes that there has been recent research and discussion regarding the role of dairy fat in healthy dietary patterns; however, in the absence of clear evidence justifying a departure from current recommendations, the panel chose to remain consistent with current guidance recommending whole milk for most children ages 12 to 24 months and fat-free (skim) or low-fat (1%) milk for children ages 2 years and older.

BEVERAGES TO LIMIT AS PART OF A HEALTHY DIET IN EARLY CHILDHOOD



100% Juice

Expert Panel Recommendations

It is ideal for young children to meet their daily fruit requirements primarily by eating fruits in fresh, canned, or frozen forms, without added sugars or LCS. However, the expert panel recognizes that for some families and individuals, 100% fruit juice may be an important component of meeting daily fruit recommendations, and thus, achieving a healthy eating pattern. As such, the following recommendations are considered upper limits for daily servings of 100% fruit juice, not minimum requirements:

- 0-6 months: Juice is not recommended.
- 6-12 months: Juice is not recommended.
- 1-3 years (12-36 months): No more than 4 ounces of 100% juice per day.
- 4-5 years (37-60 months): No more than 4 to 6 ounces of 100% juice per day.

These recommendations also extend to 100% fruit and vegetable juice blends.

Regarding juice products that are comprised of 100% juice diluted with other liquids, such as purified water or coconut water, the proportion of these products that is 100% juice is generally not clearly labeled on the package. In addition, there is not clear guidance from the U.S. Food and Drug Administration (FDA) regarding the composition of these products, and it may be difficult for consumers to distinguish these products from fruit-flavored drinks with added sweeteners, which are not recommended for consumption among 0 to 5-year-olds. Thus, the expert panel suggests that the most straight-forward approach is for consumers to purchase products comprised only of 100% juice and dilute them with water at home if desired (noting that the proportion of 100% juice in the final beverage should adhere to the portion sizes outlined above). This approach is also generally more cost-effective for families.

Rationale

The fruit food group, as defined by the DGAs, includes both whole fruit and 100% fruit juice. 100% fruit juice can be part of a healthy eating pattern; however, it is lower in dietary fiber than whole fruit and can contribute extra calories when consumed in excess. Thus, it is important to adhere to recommended portion sizes. The 2015 DGAs include 100% juice guidelines for 2 to 5-year-olds, and in 2017, the AAP released updated, evidence-based recommendations for fruit juice consumption in 0 to 5-year-olds.^{5,18}

The expert panel's recommendations align with the 2015 DGA and 2017 AAP recommendations for 100% fruit juice consumption.

100% fruit juice may be an important contributor to achieving adequate fruit intake in young children, particularly in certain populations for whom access to and affordability of fruit is limited. In addition, the available evidence suggests that when consumed in recommended amounts, 100% fruit juice does not appear to promote excess weight gain in young children but may, based on limited data, influence consumption of fruit juice and SSB later in childhood.^{19,20,21} The panel concluded that if young children cannot meet their daily fruit requirements by eating fruits in fresh, canned, or frozen forms, without added sugars or LCS, then consuming a combination of fruit and 100% fruit juice is preferred to not meeting daily fruit intake goals. As such, the recommendations are considered upper limits, not minimum requirements, for daily servings of 100% fruit juice.

BEVERAGES NOT RECOMMENDED AS PART OF A HEALTHY DIET IN EARLY CHILDHOOD



Plant Milks/Non-Dairy Beverages

Expert Panel Recommendations

- 0-12 months: Plant milks/non-dairy beverages are not recommended.
- 1-5 years (12-60 months): Plant milks/non-dairy beverages are not recommended for exclusive consumption in place of dairy milk (with the exception of soy milk); consume only when medically indicated or to meet specific dietary preferences.

Rationale

Plant-based milks are growing in popularity, but it is important to note that they are not nutritionally equivalent to cow's milk. They have varying nutritional profiles based on their plant source and many often contain added sugars. With the exception of soy milk, the DGAs do not include these beverages as part of the dairy group because their overall nutritional content is not similar to dairy foods.

The expert panel identified published analyses of the nutritional composition of plant milks compared to cow's milk.^{22,23} Although plant milks may be fortified to attain similar nutrient levels as cow's milk, it is not known whether the bioavailability of these added nutrients is comparable to that of their naturally-occurring counterparts in cow's milk. These studies concluded that cow's milk should not be removed from the diets of young children unless there is a medical indication or specific dietary preference, and that non-dairy milk beverages should not be considered adequate nutritional substitutes for cow's milk until nutrient quality and bioavailability are established.

Thus, the expert panel agrees with the DGAs that plant milks are not generally a good substitute for meeting daily serving recommendations from the dairy food group.

For 0 to 12-month-olds, plant milks/non-dairy beverages should not be used as a substitute for breast milk or infant formula. Use of alternative beverages as a major component of the diet during this period has been associated with malnutrition.¹¹ For children 1 to 5 years of age, plant milks may be useful for those with allergies or intolerances to cow's milk. For those children, the choice to consume plant milk should be undertaken in consultation with a health care provider, such as a pediatrician and/or registered dietitian nutritionist, so that intake of nutrients commonly obtained from dairy milk can be considered in dietary planning.



Flavored Milk

Expert Panel Recommendations

- 0-12 months: Do not consume milk (flavored or plain).
- 1-5 years (12-60 months): Consume only plain, pasteurized milk*; flavored milk is not recommended.

*See section on plain milk for amounts and types of plain milk recommended for 1 to 5-year-olds.

Rationale

Flavored milk contains caloric sweeteners, and the expert panel concurs with the American Heart Association's recommendation to avoid added sugars for children younger than 2 years old.²⁴ For older children (ages 2 to

5 years), the expert panel considered it appropriate to recommend avoiding flavored milk in order to minimize intake of added sugars and avoid contributing to early establishment of a preference for sweet taste as well as potential negative impacts on nutrient intake and diet quality.

The expert panel's recommendations on flavored milk are consistent with the federal Child and Adult Care Food Program (CACFP) nutrition standards, as well as the National Academies of Sciences, Engineering and Medicine recommendation that only unflavored milk be permitted in the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) food package.^{25,26}

The expert panel reviewed literature on the impact of flavored milk consumption in early childhood on diet quality, taste preference development, bone density, type 2 diabetes, CVD, and body weight. There was limited evidence surrounding the health effects of flavored milk consumption in 0 to 5-year-olds, and the evidence related to weight and dietary intake was inconsistent.²⁷⁻³⁰



Toddler Milk

Expert Panel Recommendations

- 0-12 months: Avoid supplementation with “transition” or “weaning” formulas; nutrient needs should be met primarily through human milk and/or infant formula.
- 1-5 years (12-60 months): Toddler milk is not recommended; nutrient needs should be met primarily through nutritionally adequate dietary patterns.

Rationale

The World Health Organization has called toddler milks or transition formulas unnecessary and unsuitable as a breast milk substitute, and suggests that they undermine sustained breastfeeding up to 2 years and beyond.^{31,32} The AAP has noted that follow-up or weaning formulas offer no clear advantage for infants consuming sufficient amounts of iron- and vitamin-containing solid food.³³ Moreover, some toddler milks or transition formulas have added caloric sweeteners.

The expert panel did not identify any longitudinal studies on consumption of these beverages in early childhood and their impact on health outcomes. Although there is not currently evidence to indicate that these products are harmful, the expert panel concluded that they offer no unique nutritional value beyond what could be obtained with healthy foods; furthermore, they may contribute added sugars to the diet. Therefore, they are not recommended as part of a healthy diet in early childhood. If nutrient-rich food intake appears to be inadequate, other strategies to increase food acceptance should be tried first, such as repeated exposures to healthy foods. Toddler milk and transition formulas are also more expensive than an equivalent volume of cow's milk.



Sugar-Sweetened Beverages (SSB)

Expert Panel Recommendations

- 0-5 years: SSB are not recommended, including, but not limited to, soft drinks/soda, fruit drinks, fruit-flavored drinks, fruitades, sports drinks, energy drinks, sweetened waters, and sweetened coffee and tea beverages.⁵

Rationale

Consumption of SSB in early childhood has a negative impact on overall dietary intake and health outcomes, such as dental caries, overweight and obesity, and type 2 diabetes.⁷ Thus, it is prudent to limit children's

exposure to added sugars in early childhood, and SSB are the largest source of added sugars in young children's diets.³⁴ Fruit-flavored drinks (e.g., fruitades, fruit cocktails, fruit punch) are the most commonly consumed SSB in young children. Therefore, additional attention should be paid to reducing consumption of these beverages to limit children's exposure to added sugars in early childhood, including through policy strategies.³⁵

No research has been conducted to examine the impact of SSB consumption in early childhood on the development of flavor preferences. However, children's innate preference for sweetness is well-documented, and it is plausible that early and consistent introduction of SSB could lead to increased preference for sweet foods and beverages and poor diet quality later in life.⁷



Beverages with Low-Calorie Sweeteners (LCS)

Expert Panel Recommendations

- 0-5 years: Beverages with LCS are not recommended.

Rationale

The use of LCS in the food supply has increased in recent years alongside demand for lower-sugar products. In 2018, the AHA released a science advisory cautioning against children's prolonged consumption of LCS beverages, stating "...there is a dearth of evidence on the potential adverse effects of LCS beverages relative to health benefits."³⁶ The expert panel likewise identified little evidence regarding the short and long-term health impacts of beverages with LCS, particularly among young children,³⁷⁻⁴¹ and therefore, concluded that a precautionary approach was prudent. Given that early childhood is a critical developmental period in children's lives with rapid physical, brain, cognitive, and social growth and development, along with the lack of evidence regarding the short- and long-term health impacts of beverages with LCS in young children, it is this panel's expert opinion that beverages with LCS should be avoided between the ages of 0 to 5 years. Moreover, it is plausible that given children's innate preference for the taste of sweetness, frequent early life exposure to and familiarization with highly sweet substances may contribute to their vulnerability to poor dietary habits as they age.



Caffeinated Beverages

Expert Panel Recommendations

- 0-5 years: Do not consume caffeinated beverages.

Rationale

Compared to adults, there is less certainty about the safe level of caffeine intake in children and adolescents. There are currently no specific recommendations for caffeine intake, and caffeine content is not required to be disclosed on nutrition labels, making it difficult to gauge intake.

Average caffeine intakes for children are typically low; however, it is the opinion of this expert panel that caffeinated beverages should not be consumed among 0 to 5-year-olds due to potential for adverse effects.⁴²⁻⁴⁴

CONCLUSIONS

Adequate intake of healthy beverages in early childhood is critical to meeting the nutritional needs of infants and young children and supporting healthy development. Despite efforts in recent years to improve beverage intake patterns among children, many children are still not meeting recommendations and disparities in intake persist. The beverage recommendations put forward by this expert panel are based on the best available evidence and provide consistent messages that can be used by health care providers, public health practitioners, and parents and caregivers to improve the beverage intake patterns of infants and young children.

This expert panel uncovered many areas requiring additional rigorous research in order to inform future dietary guidance for 0 to 5-year-olds. Researchers should focus future efforts on

longitudinal studies of the impact of consumption of beverages, such as flavored milk, plant milks/non-dairy beverages, and beverages with LCS in early childhood and diet-related disease outcomes.

These consensus recommendations are a strong basis for practitioners, providers, and advocates to develop tailored materials for a wide variety of stakeholders, such as parents, health care providers, policymakers, and industry representatives. The level of collaboration and consistency among major national health and nutrition organizations represented in these recommendations is unprecedented and has the capacity to make meaningful change and improve the health and well-being of infants and young children throughout the United States.

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About Healthy Eating Research

Healthy Eating Research (HER) is a national program of the Robert Wood Johnson Foundation. Technical assistance and direction are provided by Duke University under the direction of Mary Story PhD, RD, program director, and Megan Lott, MPH, RDN, deputy director. HER supports research to identify, analyze, and evaluate environmental and policy strategies that can promote healthy eating among children and prevent childhood obesity. Special emphasis is given to research projects that benefit children and adolescents and their families, especially among lower-income and racial and ethnic minority population groups that are at highest risk for poor health and well-being and nutrition-related health disparities. For more information, visit www.healthyeatingresearch.org or follow HER on Twitter at [@HERResearch](https://twitter.com/HERResearch).

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APPENDIX A: KEY PANEL FINDINGS AND RECOMMENDATIONS

Table 1: Summary of Recommendations for Healthy Beverage Consumption, Ages 0-5 Years*

	0-6 months	6-12 months	12-24 months	2-5 years		Notes
				2-3 years	4-5 years	
Beverages Recommended as Part of a Healthy Diet	Plain drinking water	No supplemental drinking water needed	Approximately 0.5-1.0 cups (4-8 oz) // day in a cup. Begin offering during meals once solid foods are introduced.	1-4 cups (8-32 oz) per day	1-5 cups (12-40 oz) per day	Where an individual child falls within these ranges for 12 months to 5 years will depend on the amounts of other beverages consumed during the day.
	Plain, pasteurized milk	Not recommended	Not recommended	Up to 2 cups (16 oz) per day skin (fat-free) or low-fat (1%) milk	Up to 2.5 cups (20 oz) per day skin (fat-free) or low-fat (1%) milk	For 12-24 months, reduced-fat (2%) or low-fat (1%) milk may be considered in consultation with a pediatrician, especially if weight gain is excessive or family history is positive for obesity, dyslipidemia, or other cardiovascular disease; the total amount of milk consumed during this age will depend on how much solid food is being eaten.
Beverages to Limit	100% juice	Not recommended	Whole fruit preferred. No more than 0.5 cup (4 oz) per day 100% juice.	Whole fruit preferred. No more than 0.5 cup (4 oz) per day 100% juice.	Whole fruit preferred. No more than 0.5-0.75 cup (4-6 oz) per day 100% juice.	Amounts listed for ages 12 months to 5 years are upper limits (not minimum requirements) that may be consumed only if fruit intake recommendations cannot be met with whole fruit.

Beverages Not Recommended as Part of a Healthy Diet					
	0-6 months	6-12 months	12-24 months	2-5 years	Notes
Plant milks/ Non-dairy beverages	Not recommended	Not recommended	Not recommended for exclusive consumption in place of dairy milks; consume only when medically indicated (e.g., cow's milk allergy or intolerance) or to meet specific dietary preferences (e.g., vegan)	Consume only when medically indicated (e.g., allergy or intolerance) or to meet specific dietary preferences (e.g., vegan)	Consumption of these beverages as a full replacement for dairy milk should be undertaken in consultation with a health care provider so that adequate intake of key nutrients commonly obtained from dairy milk can be considered in dietary planning.
Flavored milk	Not recommended	Not recommended	Not recommended	Not recommended	Added sugars intake should be avoided in children <2 years old and minimized in children 2-5 years old to avoid contributing to early establishment of a preference for sweet taste as well as potential negative impacts on nutrient intake and diet quality.
Toddler milk	Not recommended	Not recommended	Not recommended	Not recommended	These products offer no unique nutritional value beyond what a nutritionally adequate diet provides and may contribute added sugars to the diet and undermine sustained breastfeeding.
Sugar-sweetened beverages (SSB)	Not recommended	Not recommended	Not recommended	Not recommended	Strong evidence demonstrates the adverse health effects of SSB, which include, but are not limited to, soft drinks/soda, fruit drinks, fruit-flavored drinks, fruitades, sports drinks, energy drinks, sweetened waters, and sweetened coffee and tea beverages.
Beverages with low-calorie sweeteners (LCS)	Not recommended	Not recommended	Not recommended	Not recommended	This recommendation is based on expert opinion given that early childhood is a critical developmental period and there is a lack of evidence regarding the long-term health impact(s) of LCS consumption in young children.
Caffeinated beverages	Not recommended	Not recommended	Not recommended	Not recommended	Caffeinated beverages are not appropriate for young children.

Note: All amounts listed are per day, unless otherwise noted; 1 cup = 8 fluid ounces.

*The expert panel did not address breast milk or infant formula, as recommendations in these areas vary by the infant's age, weight, and developmental milestones and are generally well understood and widely accepted.